

Lab: Determining Density

Part 1: Mystery Cubes

1. Find the mass, volume, & density of each cube.
2. Use the table to hypothesize what material each cube is made of.
3. Find your teacher to check your answers & record the actual material of each cube.

Cube #	Mass (g)	Volume (cm ³) L x W x H	Density = m/v g/cm ³	Hypothesis: Cube Material	Actual: Cube Material
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

How accurate are your results? Explain what caused you to be accurate or inaccurate.

Substance	Density (g/cm ³)	Substance	Density (g/cm ³)
Air (avg)	0.0009	Plastic	2.0
Cork	0.12	Concrete	2.3
Poplar Wood	0.35-0.5	Granite	2.6
Cedar Wood	0.38	Glass	2.7
Alder Wood	0.4-0.7	Aluminum	2.7
Pine Wood	0.45	Titanium	4.5
Mahogany Wood	0.57	Steel	7.6-7.9
Maple Wood	0.6-0.75	Brass	8.0-8.5
Oak Wood	0.6-0.9	Copper	8.9
Walnut Wood	0.65-0.7	Lead	11.3
Polypropylene	0.9-0.92	Platinum	21.5
Acrylic	1.1-1.2	PVC	1.4
Nylon	1.13	Water	1.00

Chapter 2 Density / Buoyancy Questions:

Answer the questions that are shaded: Show your work!

Object	Mass (gram)	Volume (mL or cm ³)	Density (g/mL or g/ cm ³)	Sink or Float?
Piece of Cork	24	100	Question 1	Question 2
Piece of Wood	89	10	Question 3	Question 4
Steel Cube	7.8	1	Question 5	Question 6
Steel Nail	Question 7	1.6	7.8	Question 8
Block of Gold	575	Question 9	19.3	Question 10
Ice Cube	Question 11	1	0.92	Question 12
Rubber Stopper	33	30	Question 13	Question 14
Milk Carton	2	Question 15	0.95	Question 16
Block of Aluminum	81	30	Question 17	Question 18
Pinewood	Question 19	25	0.50	Question 20

Formulas to Remember:

$$D=m/v \quad V=D/m \quad m= D \times V$$

$$D= \text{Density} \quad V= \text{Volume} \quad m= \text{Mass}$$

Remember: Density of water is 1. For an object to float, the density must be LESS than 1, otherwise, it will sink!